

[54] COWLING ARRANGEMENT FOR A TURBOFAN ENGINE

[75] Inventors: Anthony Joseph Chamay, Marblehead; James Smith, Topsfield; Thomas Neil Hull, Jr., Marblehead, all of Mass.

[73] Assignee: General Electric Company, Lynn, Mass.

[22] Filed: Feb. 25, 1974

[21] Appl. No.: 445,459

[44] Published under the second Trial Voluntary Protest Program on February 3, 1976 as document No. B 445,459.

[52] U.S. Cl. .... 60/226 A; 60/271; 239/265.39

[51] Int. Cl.<sup>2</sup> ..... F02K 3/02; B64C 15/06

[58] Field of Search ..... 60/226 A, 229, 232, 60/271; 239/265.41, 265.43, 265.39, 265.33; 244/42 D, 42 DA; 92/92

[56] References Cited

UNITED STATES PATENTS

3,047,257 7/1962 Chester ..... 244/42 DA

|           |         |                   |              |
|-----------|---------|-------------------|--------------|
| 3,082,792 | 3/1963  | Jenkins .....     | 92/101 X     |
| 3,511,055 | 5/1970  | Timms .....       | 60/229       |
| 3,612,402 | 10/1971 | Timms et al. .... | 239/265.41 X |
| 3,747,341 | 7/1973  | Davis .....       | 60/226 A     |
| 3,785,567 | 1/1974  | Fischer .....     | 239/265.39   |

Primary Examiner—Carlton R. Croyle  
Assistant Examiner—Thomas I. Ross  
Attorney, Agent, or Firm—James W. Johnson, Jr.;  
Derek P. Lawrence

## [57] ABSTRACT

A cowling arrangement is provided for a turbofan engine of the variable pitch fan blade type wherein the aft portion of the fan cowling has the ability both to slide axially with respect to the main forward portion, providing an annular intake to increase reverse airflow during reverse pitch fan operation, and to vary radially so as to adjust exit area during normal operation at forward pitch.

9 Claims, 8 Drawing Figures

